Sankowskya, a new genus of Euphorbiaceae (Dissiliariinae) from the Australian Wet Tropics

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Summary

Forster, Paul I. (1995). *Sankowskya*, a new genus of Euphorbiaceae (Dissiliariinae) from the Australian Wet Tropics. *Austrobaileya* 4(3): 329–335. *Sankowskya*, a new genus of subtribe Dissiliariinae in the Euphorbiaceae is described. The genus is monotypic with the highly endangered *S. stipularis* sp. nov. endemic to the 'Wet Tropics' of north-east Queensland. *Sankowskya* is compared to other genera in the Dissiliarinae and a key to genera in the subtribe is provided.

Key words: Euphorbiaceae; *Sankowskya* - Australia; *Sankowskya stipularis*.

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Introduction

In 1989, Garry Sankowsky of Tolga in north-east Queensland discovered and collected material of a species of Euphorbiaceae from the Rex Range estate between Julatten and Mossman in the 'Wet Tropics' of north-east Queensland. Specimens of this plant were filed in herbaria at Atherton and Brisbane as an undescribed species of *Dissiliaria* and have been referred to as such in a number of publications (Thomas & McDonald 1989; Werren 1992; Christophel & Hyland 1993; Hyland & Whiffin 1993; Forster 1994).

This species does not belong in *Dissiliaria* as there are some important differences in floral and seed morphology that preclude its inclusion in that genus. The new species clearly belongs to the Euphorbiaceae subfamily Oldfieldioideae, tribe Caletieae, subtribe Dissiliariinae (sensu Webster 1994), the members of which are found in Australia, Malesia and Melanesia. It is not referable to any of the other genera presently included in the subtribe (**Table 1**). The species is unique in the Dissiliariinae in its large and conspicuous stipules and female flowers with 3 sepals and strongly rugose-papillose styles. It is perhaps most closely allied to the New Caledonian *Longetia* Baill. as it shares the characteristic of smooth pollen as found in that genus (McPherson & Tirel 1987; Punt 1987), but differs most noticeably from that genus in the very large and conspicuous stipules, the female flowers with 3 sepals and linear in outline styles, and the hairy receptacle of the male flower. In this paper, a new genus, *Sankowskya* is established to accomodate this species, here named *S. stipularis*.

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Materials and Methods

This account of *S. stipularis* is primarily based on herbarium holdings at BRI and QRS, there being no specimens to my knowledge currently held in other Australian herbaria, and field observations and collections by the author.

Terminology

Indumentum cover is described using the terminology of Hewson (1988), except that 'scattered' is preferred to 'isolated'.

Rainforest typology follows Webb (1978). The 'Wet Tropics' is defined as that part of north-eastern Queensland that encompasses the 'hot, humid vine forests' from near Cooktown in the north to Paluma in the south (Webb & Tracey 1981; Barlow & Hyland 1988).

Taxonomy

Sankowskya P.I. Forst., **gen. nov.** (Euphorbiaceae: Dissiliariinae). Arbor parva, monoecia, sempervirens.

Indumentum trichomatum simplicium multi-cellularium. Stipulae lineari-usque oblongi-lanceolatae, magnae et conspicuae, demum deciduae. Folia opposita, petiolata, margine crenato, elobata, penninervia. Inflorescentiae axillares, cymosae, bracteatae, plerumque monoeciae. Flores feminei pedicellati; sepala 3, imbricata; petala nulla; discus nullus; ovarium 3-loculatum, loculis biovulatis; styli 3, lineari, adaxialiter valde papillosi-rugosi, erecti, liberi. Flores masculini pedicellati; sepala 2 + 2, imbricata; petala nulla; discus nullus; receptaculum convexum; stamina 12-15, filamentis filiformibus; anthera thecis distinctis, oblongis longitudinaliter dehiscentibus; pollinis grana laevia; pistillodia nulla. Fructus capsulares, 3-loculati, ovoidei, dehiscentes; semina obloidea, caruncula praesenti. Genus unicum in sub-tribe Dissiliariinis propter stipulas magnas conspicuas, flores femineos sepalis 3 et stylis valde papillosi-rugosis.

Typus: *Sankowskya stipularis* P.I. Forst.

Small trees, monoecious, evergreen, perennial; stems and foliage without conspicuous latex. Indumentum of simple, never glandular, multicellular trichomes, stinging hairs absent. Stipules linear-lanceolate to lanceolate-oblong, large and conspicuous, deciduous. Leaves opposite, petiolate; lamina elobate, penninerved with margins crenate, eglandular. Inflorescences axillary, racemose, solitary, uni- or bisexual with the female flowers towards the apex, and flowers in bracteate clusters. Female flowers pedicellate; sepals 3, imbricate; petals absent; disk absent; pistillodes absent; ovary 3-locular with loculi biovulate; styles 3, linear in outline, strongly papillose-rugose on upper surface, erect, free. Male flowers pedicellate; sepals 2+2, imbricate; petals absent; disk absent; receptacle convex; stamens 12-15 with filaments filiform; anthers dorsifixed, bilobate with thecae oblong and longitudinally dehiscent; pistillodes absent; pollen smooth. Fruit capsular, trilocular, ovoid, smooth, dehiscent; seeds globose; testa crustaceous; albumen fleshy; caruncle rounded, entire, non-arilloid.

Unique in the Dissiliariinae because of the large and conspicuous stipules and the female flowers with 3 sepals and strongly rugose-papillose styles.

A monotypic genus endemic to Australia.

Etymology: Named for Garry Sankowsky of Tolga, an avid plantsman, discoverer and collector of this plant and many others new to science.

Key to genera of subtribe Dissiliariinae

1. Plants dioecious 2
   Plants monoecious 4

2. Male flowers without pistillodes; seeds semi-elliptic in outline, laterally compressed ..... **Dissiliaria** F.Muell. ex Baill.
   Male flowers with pistillodes; seeds globose or ovoid, not laterally compressed 3

3. Styles linear in outline; fruit subglobose, strongly tricoccous with style remnants widely separated ..... **Choriceras** Baill.
   Styles cordate-ovate in outline; fruit globose, style remnants in close proximity 4

4. Ovary 3 or 4-locular; seeds with arilloid caruncle ..... **Austrobuxus** Miq.
   Ovary 2-locular; seeds ecarunculate ..... **Canaca** Guillaumin

5. Stipules very large and conspicuous (> 8 mm long); female flowers with 3 sepals; receptacle in male flower glabrous ..... **Sankowskya** P.I.Forst.
   Stipules small and inconspicuous (< 8 mm long) or absent; female flowers with 2+2 or 3+3 sepals; receptacle in male flower hairy **6**

6. All flowers with glandular disk; styles linear in outline; stamens > 45; pollen spiny ..... **Whyanbeelia** Airy Shaw & B.Hyland
   All flowers without glandular disk; styles cordate-ovate in outline;stamens < 45; pollen smooth ..... **Longetia** Baill. ex Muell.Arg.

Sankowskya stipularis P.I.Forst., **sp. nov.** Arbor usque 15 m alta. Indumentum incolor usque flavum. Truncus rectus sine striis vel anteridibus, usque 10 cm diam.; cortex laevis, non notabilis, pagina incisa pallidi-roseola. Ramuli plus minusve rotundati, trichomatibus sparsis, glabrescentes. Stipulae 9-35 mm longae, 1–4.4 mm latae, glabrae. Folia ubi novella rubra usque roseola, ubi matura atrovirentia atrovirentia plus minusve concolora; petiolus 4–6 mm longus, c. 1 mm diam., glaber vel trichomatibus sparsis caducis; lamina lanceolata usque elliptica, 50–180 mm longa, 15–65 mm lata, coriacea, margine leniter crenato dentibus 23–30 in quoque latere; venis abaxialiter prominens et adaxialiter obscura, venis utroque costae 7–10, venis secundariis reticulatis; apex breviter acuminatus usque longi-acuminatus; basis cordata vel obtusa vel leniter auriculata. Inflorescentiae femineae 1- vel 2-florae in foliorum axillis distalibus; pedunculus obsoletus; bracteae triangulares, c. 1 mm longae, 0.7 mm latae. Flores feminei pedicello 3–8 mm longo et 1 mm diam. glabro vel trichomatibus sparsis; sepala lanceolata, 1.5–3 mm longa, 1–1.6 mm lata, glabra; ovaria 1.1–1.3 mm diam., trichomatibus densis; styli 8–10 mm longi, 0.5–1 mm lati, base vix connati, erecti, distaliter valde papillosi-rugosis et trichomatibus simplicibus sparsis. Inflorescentiae masculinae in foliorum axillis distalibus, ad femineas vel discretae, singulares vel geminae in quoque axe, glomeratae florum multorum; pedunculus plus minusve obsoletus; bracteae ovati-triangulares, 0.6–1.5 mm longae, 0.3–1 mm latae, trichomatibus sparsis. Flores masculini pedicello 3–6 mm longo et 0.2–0.5 mm diam., glabro; sepala obovata usque ovata, 1.3–2.2 mm longa et lata, glabra; filamenta 1–1.5 mm longa; antherae 0.7–1.3 mm longae, c. 0.8 mm latae. Fructus pedicello 8–9 mm longo, capsularis, 9–12 mm longus, 10–11 mm diam., stylorum basibus persistentibus et distaliter leviter liberis; semina c. 8 mm longa, 5 mm lata, 2.5–3 mm profunda, laevia, pallidi-brunnea, caruncula c. 1 mm diam. **Typus: Queensland.** Cook District: Devil Devil Creek road, Rex Range estate, 16°33'S, 145°23'E, 14 Dec 1993, *P.I. Forster* 14473 (holo: BRI [3 sheets + spirit]; iso: A, K, L, MEL, QRS distribuendi).

Dissiliaria sp. RFK/25730 (Christophel & Hyland 1993: 102g; Hyland & Whiffin 1993, 2: 132).

Dissiliaria sp. (Rex Range G.Sankkowsky 1075); Forster (1994:110).

***Illustration*:** Christophel & Hyland (1993: 102g).

Small tree to 15 m high. Indumentum colourless to yellowish. Trunk straight with no fluting or buttressing, diameter at breast height up to 10 cm; bark smooth, nondescript, white; blaze pale-pink. Branchlets ± rounded, with scattered to sparse trichomes, glabrescent. Stipules linear-lanceolate or rarely lanceolate-oblong, 9–35 mm long, 1–4.4 mm wide, glabrous. Leaves bright red to pink when expanding, dark green and ± concolorous when mature; petioles 4–6 mm long, c. 1 mm diameter, glabrous or with scattered trichomes, glabrescent; laminas lanceolate to elliptic, 50–180 mm long, 15–65 mm wide, coriaceous, with margins weakly

Table 1. Comparison of morphological characters for genera in the subtribe Dissiliariinae. Abbreviations: *Aust.* (= *Austrobuxus*), *Cana.* (= *Canaca*), *Chor.* (= *Choriceras*), *Diss.* (= *Dissiliaria*), *Long.* (= *Longetia*), *Sank.* (= *Sankowskya*), *Whya* (= *Whyanbeelia*).

	Aust.	*Cana.*	*Chor.*	*Diss.*	*Long.*	*Sank.*	*Whya.*
1. plant sexuality dioecious (D) monoecious (M)	D	D	D	D	M	M	M
2. stipules absent (A) small (S) large (L)	AS	A	S	SL	A	L	A
Female Flowers							
3. sepal no.	2+2, 3+3	2+2	3+3	3+3	3+3	3	3+3
4. glandular disk present (+)absent (-)	+ or -	?	-	+	-	-	+
5. styles cordate-ovate (+) linear (-)	+	+	-	-	+	-	-
6. fruit shape globose (G) subglobose (S) ovoid (O)	G	G	S	G	G	O	G
7. seed globose to ovoid (-) laterally compressed (+)	-	-	-	+	-	-	+
8. caruncle present (+) absent (-) arilloid(*) entire (#)	+*	-	-	+#	+#	+#	+#
Male flowers							
9. sepal no.	4–6	4	4–6	4–6	6	4	6
10. receptacle glabrous (G) hairy (H)	G or H	H	H	H	H	G	H
11. glandular disk present (+)absent (-)	-	-	-	-	-	-	+
12. stamens	8–27	18–26	4–6	15–20	9–17	12–15	50–55
13. anthers globose (G) oblong (O)	O	O	G	O	O	O	O
14. pollen spiny (+) smooth (-)	+	+	-	+	-	-	+
15. pistillodes present (+) absent (-)	-	-	+	-	+	-	-

crenate with 23 to 30 small teeth per side of midrib; venation obscure above and prominent below, composed of 7 to 10 lateral veins per side of the midrib and with interlateral veins reticulate; tip short to long acuminate; base cordate, weakly auriculate or obtuse. Inflorescences uni- or bisexual. Female inflorescences with 1 or 2 flowers in distal axils; peduncles obsolete; bracts triangular, c. 1 mm long and 0.7 mm wide. Female flowers with pedicels 3–8 mm long and c. 1 mm diameter, glabrous or with scattered trichomes; sepals lanceolate, 1.5–3 mm long, 1–1.6 mm wide, glabrous; ovaries 1.1–1.3 mm diameter, with dense trichomes; styles 8–10 mm long, 0.5–1 mm wide, barely connate at base, held erect, with upper parts strongly rugose-papillose and with scattered simple hairs. Male inflorescences in distal axils, either in close proximity to female inflorescences or by themselves, single or often paired in each axil, each inflorescence composed of a glomerule of many flowers; peduncles ± obsolete; bracts ovate-triangular, 0.6–1.5 mm long, 0.3–1 mm wide, with scattered trichomes. Male flowers with pedicels 3–6 mm long, 0.2–0.5 mm diameter, glabrous; sepals obovate to ovate, 1.3–2.2 mm long, 1.3–2.2 mm wide, glabrous; stamens 12–15; filaments 1–1.5 mm long; anthers 0.7–1.3 mm long, c. 0.8 mm wide. Fruit with pedicels 8–9 mm long, capsular, 9–12 mm long, 10–11 mm diameter, with bases of styles which become slightly divergent distally persisting; seeds c. 8 mm long, 5 mm wide, 2.5–3 mm deep, smooth, pale brown and with a caruncle c. 1 mm diameter. **Fig. 1.**

***Specimens examined*: Queensland.** Cook District: [all from type locality] Jun 1989, *Sankowsky* 901 (QRS), Jul 1989, *Sankowsky* 1008 (QRS), Jul 1989, *Sankowsky* 1075 (BRI), Dec 1989, *Hyland* 13894 (QRS), Dec 1989, *Hyland* 13893 (BRI, QRS), Jan 1990, *Hyland* 13933 (QRS), Jan 1990, *Sankowsky* 1027 (BRI, QRS), Jul 1991, *Sankowsky* 1227 & *Sankowsky* (BRI), Mar 1991, *Sankowsky* 1249 & *Sankowsky* (BRI, DNA, QRS), Jul 1993, *Forster* 13673 *et al.* (BRI, MEL, QRS).

***Distribution and habitat*:** *Sankowskya stipularis* is known only from private land near Rex Range on the road between Julatten and Mossman in north-eastern Queensland. Plants grow in evergreen mesophyll vineforest in swampy conditions in association with other moisture requiring plants such as *Licuala ramsayi* (F.Muell.) Domin.

***Notes*:** Either this species, another species of *Sankowskya* or a species of *Longetia* may once have been more widespread in Australia in previous times, as fossil pollen of the 'Longetia' type has been recovered from Tertiary deposits in southern New South Wales (Martin 1974).

***Phenology*:** Flowers and fruits are borne throughout the year, but flowering is probably more prolific from November to January.

***Conservation status*:** The known population of this restricted endemic is seriously endangered due to residential development of the Rex Range locality. A management plan is urgently required for this species and interventionist action has been recommended (Werren 1992). A conservation coding of 2E is recommended (cf. Briggs & Leigh 1988; Thomas & McDonald 1989; Forster 1994).

***Etymology*:** The specific epithet is derived from the Latin *stipularis* (pertaining to stipules) and alludes to the very large stipules of this plant when compared to those of most other Australian Euphorbiaceae.

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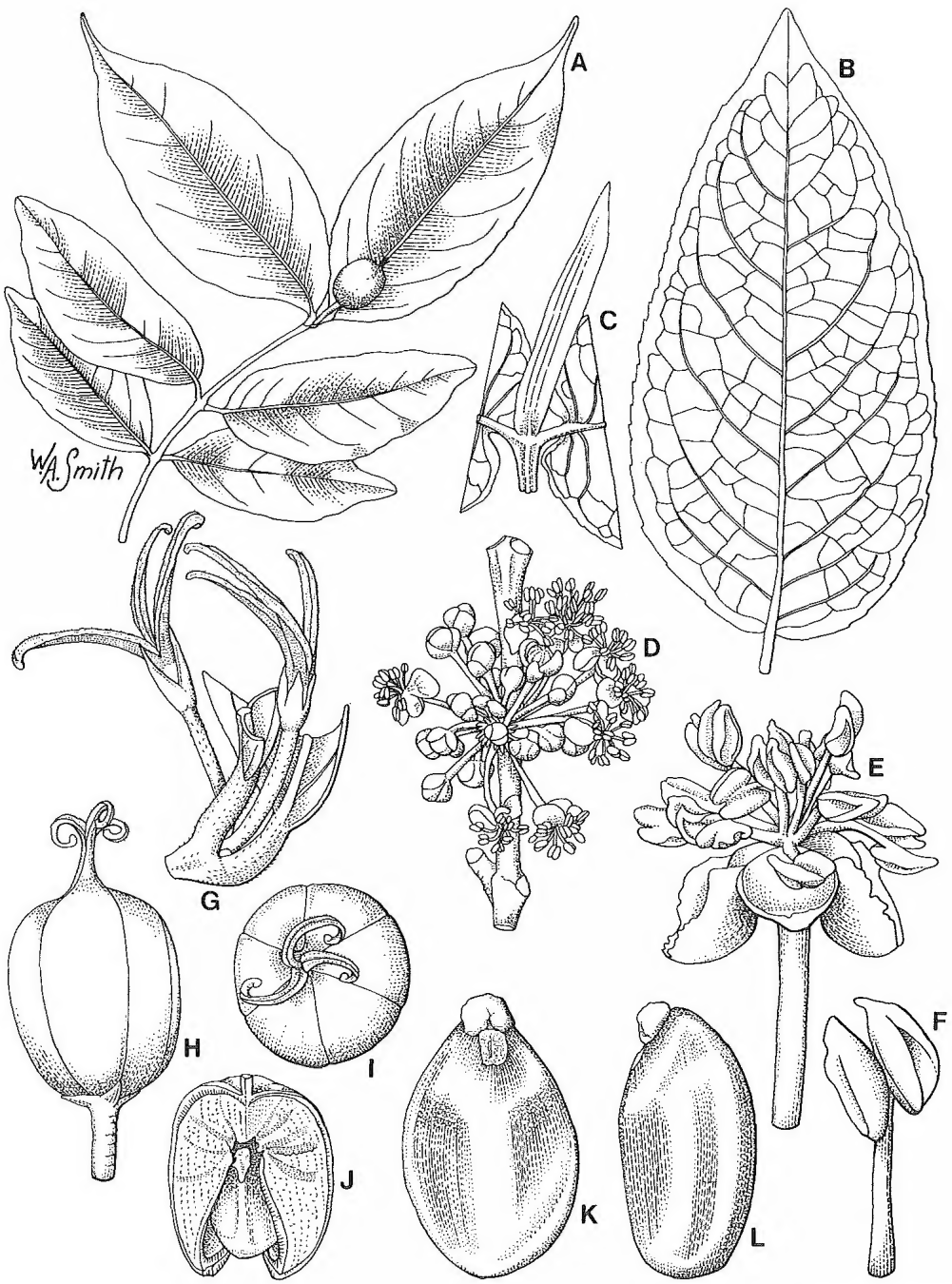

Fig. 1. *Sankowskya stipularis*. A. fruiting branchlet × 0.5. B. adaxial leaf surface showing venation × 0.8. C. base of leaf pair with interfoliar stipule × 1. D. male only inflorescence × 2. E. male flower × 4. F. stamen × 18. G. female only inflorescence × 2. H. lateral view of fruit × 2. I. apical view of fruit × 2. J. single bivalved coccus of fruit × 2. K. seed, adaxial view × 4. L. seed, lateral view × 4. A, H, I from Forster 13673 (BRI); B from Hyland 13893 (BRI); C from Sankowsky 1075 (BRI); D, E, F from Forster 14473 (BRI); J, K, L from Hyland 13933 (QRS). Del. W. Smith.

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